

HIV-Related Burden on South African Hospitals in the Era of Large-Scale Access to Antiretroviral Therapy

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ABSTRACT

Background: Prior to the large scale roll out of antiretroviral therapy (ART) for HIV in South Africa (RSA), HIV-related conditions were estimated to be responsible for at least half of all inpatient admissions to medical wards of public hospitals. Since 2004, RSA has actively expanded its HIV treatment program and in 2009 had an estimated ART coverage of 50% under the WHO 2006 guidelines. Currently it has 14 million patients on ART. We analyzed inpatient records at a large, urban, secondary hospital in Johannesburg to quantify the burden of HIV inpatient care in a population with good access to ART.

Methods: The study population included all medical patients admitted to the hospital between 1 Jan 2010 and 30 Jun 2010 (N = 8,272). We selected a random sample of 491 patients, of whom 397 (81%) had accessible files. Mortuary and laboratory records indicated that patients with inaccessible files had similar HIV status and mortality as those whose files were found. Age, sex, HIV status, ART status, length of stay, vital status, and CD4 count were collected from patient files.

Results: 174 patients (44%) had a confirmed HIV+ status (82 HIV-, 141 missing status) on admission, 55% of admissions were among females with little difference by HIV status. HIV+ patients presented at a younger mean age (39 v 51 years old). There was no difference in mean length of admission (8.7 days). HIV+ patients with CD4 count reported (153/174, 88%) had a median CD4 count of 104 cells/mm³. Of those with CD4 count reported, 72% had CD4 counts below the treatment threshold of 200 cells/mm³ but only 35% of those were on treatment at the time of the admission. Patients with CD4 count < 200 cells/mm³ had longer inpatient stays than those > 200 cells/mm³ (mean 10.3 v 6.3 days). The majority (57%) of the deaths were amongst those who were HIV+. Amongst HIV+ patients who survived only 67% had a CD4 < 200 cells/mm³ compared to 95% amongst those who died.

Conclusions: Even with large treatment programs in operation, at least 44% of medical admissions continued to be for HIV+ patients and 28% for patients with CD4 counts below the ART initiation threshold. ART scale-up has not yet substantially reduced the burden of inpatient care in South African hospitals. Interventions to promote earlier treatment initiation are needed to reduce utilization of inpatient resources.

Abstract Z - 140, CROI 2012
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BACKGROUND AND OBJECTIVES

South Africa currently has the largest antiretroviral therapy (ART) program in the world, with over 1.4 million patients on treatment. Even with this large population on treatment, it is still estimated that treatment coverage is only 55% based on current guidelines for eligibility (CD4 cell count ≤ 350). This means that there 1.1 million persons who eligible for treatment but are not receiving it. Those who do access ART typically do so late in disease progression, with very low CD4 counts. Given their compromised immune systems, these individuals are at high risk of morbidity requiring hospitalization.

Prior to 2004, when antiretroviral treatment was not widely available in South Africa, there was evidence that HIV-related morbidity was imposing an increasing burden on the inpatient facilities of public sector hospitals. It was reported that 54% of all admissions were infected with HIV and over 80% of these had AIDS. We used retrospectively collected data from a cohort at a large, urban, secondary hospital in Johannesburg, South Africa to quantify the burden of HIV on inpatient care in a population with good access to antiretroviral therapy.

METHODS

The study population consisted of all patients admitted to the medical wards of the study site between 1 January and 30 June 2010 (n=8,272). A random sample of 491 adult (> 18 years old) admissions was selected and medical records located and reviewed. Of those selected, 397 (81%) provided data for analysis; the rest were excluded because their files could not be found. Mortuary and laboratory records indicate that those patients who were excluded had a similar HIV prevalence and mortality as the study sample. Age, sex, HIV status, ART status, length of stay, vital status, and CD4 count were collected from all patients in the sample and compared by HIV status.

RESULTS

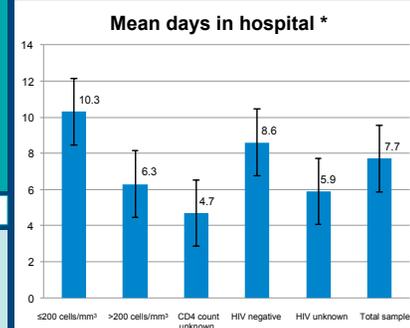
Demographic and clinical characteristics of study subjects

397 patients were enrolled. HIV prevalence in the sample, based on the presence of a confirmed HIV test result in the medical record, was 44%. As shown in the table below, HIV-positive patients were younger than HIV-negative patients and had very low CD4 counts at admission.

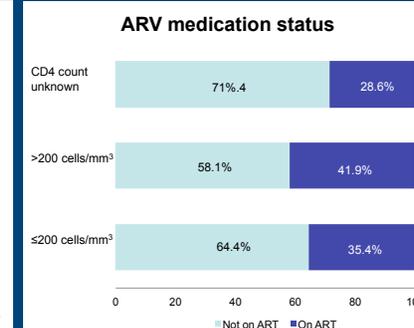
Variable	HIV positive			HIV negative (n=82)	HIV status unknown (n=141)
	≤200 cells/mm ³ (n=110)	>200 cells/mm ³ (n=43)	CD4 count unknown (n=21)		
Male, n (%)	54 (49.1)	16 (37.2)	11 (52.4)	41(50)	57 (40.4)
Female, n (%)	56 (50.9)	27 (62.8)	10 (47.6)	41 (50)	84 (59.6)
Mean age at admission, years (SD)	38 (10.0)	40 (11.3)	38 (9.2)	42 (15.0)	56 (18.4)
Median CD4 cells/mm ³ (IQR)	51 (16-111)	348 (265-437)	n/a	n/a	n/a
Alive at discharge (%)	89 (80.1)	42 (97.7)	16 (76.2)	76 (92.7)	127 (90.1)
Died while admitted (%)	21 (19.9)	1 (2.3)	5 (23.8)	6 (7.3)	14 (9.9)

RESULTS

Length of stay in the hospital



ART status of HIV positive patients



*During the study period, South Africa's criterion for ART eligibility was a CD4 cell count ≤ 200. The new criterion is ≤350 cells/mm³.

The average duration of hospital stay was longer for HIV-positive patients with low CD4 counts (10.3 days) than for either those with higher CD4 counts (6.3 days) or HIV-negative patients (8.6 days). Among all HIV-positive patients with CD4 counts (n=153), 72% were eligible for antiretroviral therapy (ART) under prevailing eligibility guidelines, but only 35% of those were on ARVs at the time of admission. The majority of the deaths were amongst those who were HIV-positive with low CD4 counts at admission or of unknown HIV status.

CONCLUSIONS

HIV is still placing a considerable burden on inpatient facilities in Johannesburg, despite ART being readily accessible and available throughout the metropolitan area. Patients are initiating ART at very low CD4 counts, leading to long hospital stays among those not yet on treatment. Getting patients onto treatment before their immune systems are severely compromised remains a priority in reducing the impact of HIV on inpatient facilities.

